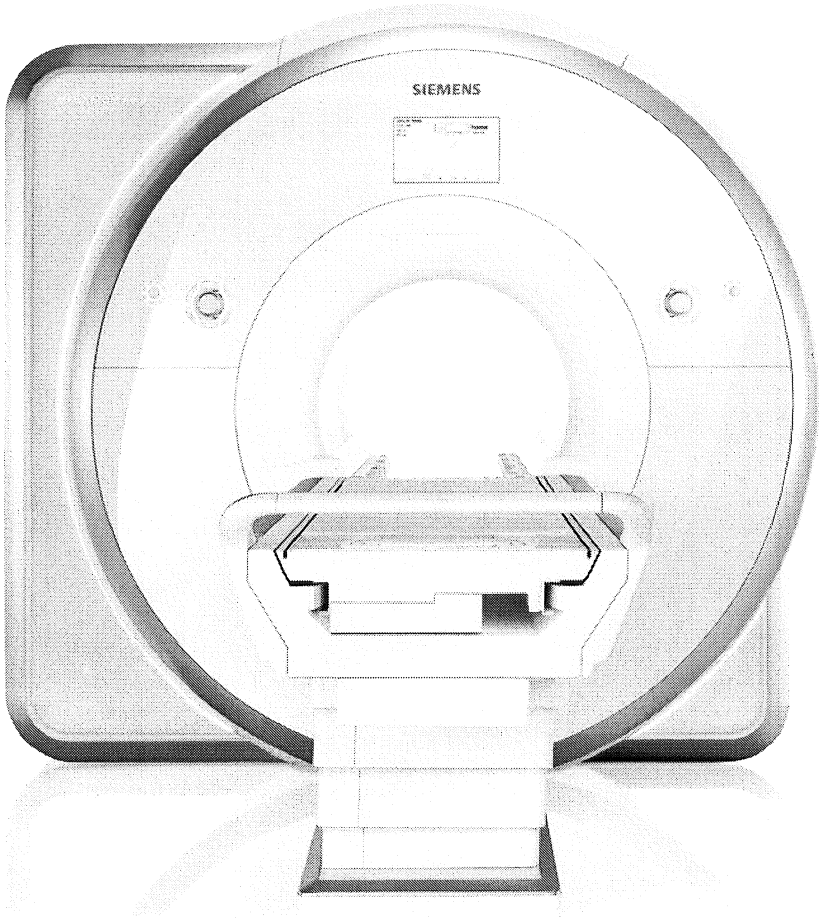
Application to the Missouri Department of Health and Senior Services

Project: Replacement of an MRI, #5196 HT



PRIME HEALTHCARE SERVICES

Certificate of Need Program

EQUIPMENT REPLACEMENT APPLICATION

- Expedited review if equipment to be replaced was CON-approved.
- Full review if equipment to be replaced was not CON-approved.

Project Name: Replacement of an MRI Project No: #5196 HT

Project Description: St. Mary's Medical Center is requesting CON approval for the replacement of an MRI

Done	Page	N/A	Description
Divider I. Application Summary:			
☑	4	☐	1. Applicant Identification and Certification (Form MO 580-1861).
☑	5	☐	2. Representative Registration (Form MO 580-1869).
☑	7	☐	3. Proposed Project Budget (Form MO 580-1863) and detail sheet with documentation of costs.
Divider II. Proposal Description:			
☑	9	☐	1. Provide a complete detailed project description.
☑	9	☐	2. Provide a listing with itemized costs of the medical equipment to be acquired.
☑	10	☐	3. Provide bid quotes for the proposed equipment.
Divider III. Community Need Criteria and Standards:			
☑	35	☐	1. Describe the financial rationale for the proposed replacement equipment.
☑	35	☐	2. Document if the existing equipment has exceeded its useful life.
☑	35	☐	3. Describe the effect the replacement unit would have on quality of care.
☑	35	☐	4. Document if the existing equipment is in constant need of repair.
☑	35	☐	5. Document if the lease on the current equipment has expired.
☑	35	☐	6. Describe the technological advances provided by the new unit.
☑	36	☐	7. Describe how patient satisfaction would be improved.
☑	36	☐	8. Describe how patient outcomes would be improved.
☑	36	☐	9. Describe what impact the new unit would have on utilization.
☑	36	☐	10. Describe any new capabilities that the new unit would provide.
☑	36	☐	11. By what percent will this replacement increase patient charges?

(If replacement equipment was not previously approved, also complete Divider IV below.)

Divider IV. Financial Feasibility Review Criteria and Standards:			
☐	___	☑	1. Document that sufficient financing is available by providing a letter from a financial institution or an auditor's statement indicating that sufficient funds are available.
☐	___	☑	2. Provide Service-Specific Revenues and Expenses (Form MO 580-1865) projected through three full years beyond project completion.
☐	___	☑	3. Document how patient charges are derived.
☐	___	☑	4. Document responsiveness to the needs of the medically indigent.

MO 580-2506 (02/13)

Divider I. Application Summary:

1. Applicant Identification and Certification (Form MO 580-1861).
   See attached form (1)

2. Representative Registration (Form MO 580-1869).
   See attached representative registration forms (2)
   Debra Cartwright
   Amy Alexander

3. Proposed Project Budget (Form MO 580-1863) and detail sheet with documentation of costs.
   See attached form (1) and following detail sheet.

Certificate of Need Program

APPLICANT IDENTIFICATION AND CERTIFICATION

*The information provided must match the **Letter of Intent** for this project, without exception.*

1. Project Location *(Attach additional pages as necessary to identify multiple project sites.)*

Title of Proposed Project	Project Number
Replacement of an MRI	#5196 HT
Project Address *(Street/City/State/Zip Code)*	**County**
201 NW RD Mize Road Blue Springs, MO 64014	Jackson

2. Applicant Identification *(Information must agree with previously submitted Letter of Intent.)*

List All Owner(s): *(List corporate entity.)*	Address (Street/City/State/Zip Code)	Telephone Number
Prime Healthcare Services	3300 East Guasil Road Ontario, CA 91761	909-235-4400

List All Operator(s): *(List entity to be licensed or certified.)*	Address (Street/City/State/Zip Code)	Telephone Number
St. Mary's Medical Center	201 NW R D Mize Road Blue Springs, MO 64014	816-228-5900

3. Ownership *(Check applicable category.)*

☐ Nonprofit Corporation	☐ Individual	☐ City	☐ District
☐ Partnership	☐ Corporation	☐ County	☑ Other LLC

4. Certification

In submitting this project application, the applicant understands that:

(A) The review will be made as to the community need for the proposed beds or equipment in this application;
(B) In determining community need, the Missouri Health Facilities Review Committee (Committee) will consider all similar beds or equipment within the service area;
(C) The issuance of a Certificate of Need (CON) by the Committee depends on conformance with its Rules and CON statute;
(D) A CON shall be subject to forfeiture for failure to incur an expenditure on any approved project six (6) months after the date of issuance, unless obligated or extended by the Committee for an additional six (6) months:
(E) Notification will be provided to the CON Program staff if and when the project is abandoned; and
(F) A CON, if issued, may not be transferred, relocated, or modified except with the consent of the Committee.

We certify the information and date in this application as accurate to the best of our knowledge and belief by our representative's signature below:

5. Authorized Contact Person *(Attach a Contact Person Correction Form if different from the Letter of Intent.)*

Name of Contact Person		Title
Debra L. Cartwright		Regional CFO
Telephone Number	**Fax Number**	**E-mail Address**
620-704-9100	n/a	dcartwright@primehealthcare.com
Signature of Contact Person		**Date of Signature**
Debra L Cartwright		7/10/15

MO 580-1861 (03/13)

Certificate of Need Program

REPRESENTATIVE REGISTRATION

*(A registration form must be completed for **each** project presented.)*

Project Name	Number
Replacement of an MRI	#5196 HT

(Please type or print legibly.)

Name of Representative	Title
Debra L. Cartwright	Regional CFO

Firm/Corporation/Association of Representative (may be different from below, e.g., law firm, consultant, other)	Telephone Number
Prime Healthcare Services	620-704-9100

Address (Street/City/State/Zip Code)

3300 East Guasil Road, Ontario, CA 91761

Who's interests are being represented?
(If more than one, submit a separate Representative Registration Form for each.)

Name of Individual/Agency/Corporation/Organization being Represented	Telephone Number
St. Mary's Medical Center	620-704-9100

Address (Street/City/State/Zip Code)

201 NW R D Mize Road, Blue Springs, MO 64014

Check one. Do you:

- ☑ Support
- ☐ Oppose
- ☐ Neutral

Relationship to Project:

- ☐ None
- ☑ Employee
- ☐ Legal Counsel
- ☐ Consultant
- ☐ Lobbyist
- ☐ Other (explain):

Other Information:

I attest that to the best of my belief and knowledge the testimony and information presented by me is truthful, represents factual information, and is in compliance with §197.326.1 RSMo which says: *Any person who is paid either as part of his normal employment or as a lobbyist to support or oppose any project before the health facilities review committee shall register as a lobbyist pursuant to chapter 105 RSMo, and shall also register with the staff of the health facilities review committee for every project in which such person has an interest and indicate whether such person supports or opposes the named project. The registration shall also include the names and addresses of any person, firm, corporation or association that the person registering represents in relation to the named project. Any person violating the provisions of this subsection shall be subject to the penalties specified in §105.478, RSMo.*

Original Signature	Date
Debra L Cartwright	7/10/15

MO 580-1869 (11/01)

Certificate of Need Program

REPRESENTATIVE REGISTRATION

*(A registration form must be completed for **each** project presented.)*

Project Name	Number
Replacement of an MRI	#5196 HT

(Please type or print legibly.)

Name of Representative	Title
Amy Alexander	Regional Director Radiology

Firm/Corporation/Association of Representative (may be different from below, e.g., law firm, consultant, other)	Telephone Number
Prime Healthcare Services	816-943-2731

Address (Street/City/State/Zip Code)

3300 East Guasil Road, Ontario, CA 91761

Who's interests are being represented?
(If more than one, submit a separate Representative Registration Form for each.)

Name of Individual/Agency/Corporation/Organization being Represented	Telephone Number
St. Mary's Medical Center	816-228-5900

Address (Street/City/State/Zip Code)

201 NW R D Mize Road, Blue Springs, MO 64014

Check one. Do you:

- ☑ Support
- ☐ Oppose
- ☐ Neutral

Relationship to Project:

- ☐ None
- ☑ Employee
- ☐ Legal Counsel
- ☐ Consultant
- ☐ Lobbyist
- ☐ Other (explain):

Other Information:

I attest that to the best of my belief and knowledge the testimony and information presented by me is truthful, represents factual information, and is in compliance with §197.326.1 RSMo which says: *Any person who is paid either as part of his normal employment or as a lobbyist to support or oppose any project before the health facilities review committee shall register as a lobbyist pursuant to chapter 105 RSMo, and shall also register with the staff of the health facilities review committee for every project in which such person has an interest and indicate whether such person supports or opposes the named project. The registration shall also include the names and addresses of any person, firm, corporation or association that the person registering represents in relation to the named project. Any person violating the provisions of this subsection shall be subject to the penalties specified in § 105.478, RSMo.*

Original Signature	Date
Amy Alexander	7-10-15

MO 580-1869 (11/01)

Certificate of Need Program

PROPOSED PROJECT BUDGET

Description	Dollars
COSTS:*	*(Fill in every line, even if the amount is "$0".)*
1. New Construction Costs ***	$0
2. Renovation Costs ***	$676,000
3. Subtotal Construction Costs (#1 plus #2)	$676,000
4. Architectural/Engineering Fees	$72,000
5. Other Equipment (not in construction contract)	$24,000
6. Major Medical Equipment	$1,219,044
7. Land Acquisition Costs ***	$0
8. Consultants' Fees/Legal Fees ***	$0
9. Interest During Construction (net of interest earned) ***	$0
10. Other Costs ***	$60,000
11. Subtotal Non-Construction Costs (sum of #4 through #10	$1,375,044
12. Total Project Development Costs (#3 plus #11)	$2,051,044 **
FINANCING:	
13. Unrestricted Funds	$2,051,044
14. Bonds	$0
15. Loans	$0
16. Other Methods (specify)	$0
17. Total Project Financing (sum of #13 through #16)	$2,051,044 **
18. New Construction Total Square Footage	0
19. New Construction Costs Per Square Foot *****	$0
20. Renovated Space Total Square Footage	1,500
21. Renovated Space Costs Per Square Foot ******	$400

* *Attach additional page(s) detailing how each line item was determined, including all methods and assumptions used. Provide documentation of all major costs.*

** *These amounts should be the same.*

*** *Capitalizable items to be recognized as capital expenditures after project completion.*

**** *Include as Other Costs the following: other costs of financing; the value of existing lands, buildings and equipment not previously used for health care services, such as a renovated house converted to residential care, determined by original cost, fair market value, or appraised value; or the fair market value of any leased equipment or building, or the cost of beds to be purchased.*

***** *Divide new construction costs by total new construction square footage.*

****** *Divide renovation costs by total renovation square footage.*

Divider I. Applicant Summary:

3. **Proposed Project Budget (Form MO 580-1863) and detail sheet.**

Proposed Project Budget (Form 580-1863) – Detail Sheet

- Line 2 – Renovation Costs – see draft from HMN Architects. These costs include RF Shielding required for the installation of the proposed MRI.
- Lines 4, 5, & 10 – see draft from HMN Architects. These costs include Screening Equipment, Furniture, Architectural & Engineering Fees, and Contingency.
- Line 6 – Major Medical Equipment – see quote from Siemens Medical Solutions. This cost includes the cost of the Magnetom Aera MRI, excluding any options listed.
- Line 13 – Unrestricted Funds

Divider II. Proposal Description:

1. **Provide complete and detailed project description.**

   St. Mary's Medical Center is requesting approval of the replacement CON application for a fully-depreciated Philips 1.0T MRI unit approved by the Missouri Health Facilities Review Committee on March of 1999. The project number for the 1999 CON application was 2771 HS.

   The proposed new MRI system is a 1.5T, that will be able to provide better Neurologic, Angiography, Cardiac, Body, Oncology, Breast, Orthopedic and Pediatric scanning for patients and physicians. The 1.5T short bore magnet allows us a greater table weight limit. Newer technology allows for shorter scan times, which is critical for claustrophobic patients and patients whose pain makes it hard for them to lay still. The open bore design will increase patient comfort and reduce patient anxiety. Improved image quality will allow us to more accurately diagnose disease, thereby decreasing the time from diagnosis to treatment.

2. **Provide a listing with itemized costs of the medical equipment to be acquired.**

Magnetom Aera	$1,219,044
Construction	$ 600,000
RF Shielding	$ 76,000
Other Equipment	$ 24,000
Architectural/Engineering Fees	$ 72,000
Contingency (10% of construction)	$ 60,000
Total	$2,051,044

3. **Provide bid quotes for the proposed equipment.**

   See attached quotes from the following vendor: Siemens Medical Solutions.

SIEMENS
Siemens Medical Solutions USA, Inc.
51 Valley Stream Parkway, Malvern, PA 19355
Fax: (866) 306-6681

SIEMENS REPRESENTATIVE
Jay White - (870) 404-3656

PRELIMINARY PROPOSAL

Customer Number: 0000010380

Date: 4/23/2015

ST MARYS HOSP OF BLUE SPRINGS
201 NW R D MIZE RD
BLUE SPRINGS, MO 64014

Quote Nr: **1-BCLQF3 Rev. 0**

MAGNETOM Aera

All items listed below are included for this system: *(See Detailed Technical Specifications at end of Proposal.)*

Qty	Part No.	Item Description
1	14441600	**MAGNETOM Aera - System** MAGNETOM Aera is designed to provide you the versatility you need to meet the increasing demands in healthcare. Maximize 1.5T with its core technologies Tim(r) 4G and Dot(r), along with its comprehensive application portfolio and experience unique functionalities to increase patient comfort. Every case. Every day. System Design - Short and open appearance (145 cm system length and 70 cm Open Bore Design) to reduce patient anxiety and claustrophobia - Whole-body superconductive **Zero Helium Boil-Off 1.5T** magnet - Actively Shielded water-cooled Siemens gradient system for maximum performance - TrueForm Magnet and Gradient Design Tim 4G (Total imaging matrix in the 4th generation) for excellent image quality and speed - Siemens unique **DirectRF(tm)** technology enabling the all digital-in/ digital-out design - Dual-Density Signal Transfer Technology - **Head/Neck 16 DirectConnect** - **Spine 24 DirectConnect** - **Body 6 - Flex Large 4 - Flex Small 4 - Flex Coil interface** - Tim Coil interface Dot (Day optimizing throughput) for higher consistency, flexibility and efficiency - Dot Display - Dot Control Centers - **Brain Dot Engine** Tim Application Suite allowing excellent head-to-toe imaging - Neuro Suite - Angio Suite - Cardiac Suite - Body Suite - Onco Suite - Breast Suite - Ortho Suite - Pediatric Suite - Scientific Suite Further included - High performance host computer and measurement and reconstruction system - Siemens uniqueTimCT FastView localizer and **CAIPIRINHA** - syngo MR software including - **1D/2D PACE** - **BLADE** - iPAT² - Phoenix - Inline Diffusion - **WARP** - MDDW (Multiple Direction Diffusion Weighting) - **CISS - DESS** The system (magnet, electronics and control room) can be installed in 30sqm space. For system cooling either the Eco Chiller options or the Separator is required.
1	14436777	**Tim [204x24] XJ Gradients #Ae** Tim **[204x24]** XJ-gradient performance level Tim 4G with it's newly designed RF system and innovative coil architecture enables high resolution imaging and increased throughput. Up to 204 simultaneously connected coil elements can be combined with the 24 independent RF channels for the most flexible parallel imaging and support demanding applications. Maximum SNR is ensured through the new Tim 4G matrix coil technology. XJ - gradients The XJ- gradients are designed combining high performance and linearity to support clinical whole body imaging at 1.5T. The force compensated gradient system minimizes vibration levels and accoustic noise. The XJ gradients combine 33 mT/m peak amplitude with a slew rate of 125 T/m/s.
1	14416906	**Tim Dockable Table #Ae** The Tim Dockable Table is designed for maximum patient comfort and smooth patient preparation. Tim Dockable Table can support up to 250 kg (550 lbs) patients without restricting the vertical or horizontal movement. The one step docking mechanism and the innovative multi-directional navigation wheel ensure easy maneuvering and handling. Critically ill or immobile patients can now be prepared outside the examination room for maximum patient care, flexibility and speed.
1	08464872	**PC Keyboard US english #Tim** Standard PC keyboard with 101 keys.

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PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
1	14416914	**Pure White Design #T+D** The MAGNETOM Aera / MAGNETOM Skyra design is available in different light and appealing variants which perfectly integrates into the different environments. The color of the main face plate cover of the Pure White Design Variant with the integrated Dot Control Centers and the unique Dot Display is brilliant white surrounded by a brilliant silver trim. The asymetrical deco area on the left side is colored white matte and also with a brilliant surrounding silver trim. The table cover is presented also in the same color and material selection.
1	14405224	**Composing syngo #Tim** This application provides dedicated evaluation software for creation of full-format images from overlapping MR volume data sets and MIPs (starting from syngo MR B13) acquired at multiple stages.
1	14416960	**Shoulder 16 Coil Kit #Ae** The new Tim 4G coil technology with Dual Density Signal Transfer and SlideConnect Technolgy combines key imaging benefits: excellent image quality, high patient comfort, and unmatched flexibility. The Shoulder 16 Coil Kit for examinations of the left or right shoulder consists of a base plate and two different sized iPAT compatible 16 channel coils (Shoulder Large 16 and Shoulder Small 16). These will be attached and can be relocated on the base plate.The 16-element coils with 16 integrated pre-amplifiers ensure maximimum signal-to-noise ratio. Shoulder Large 16 and Shoulder Small 16 will be connected via a SlideConnect plug for fast and easy coil set-up and patient preparation.
1	14416962	**Foot/Ankle 16 #Ae** The new Tim 4G coil technology with Dual Density Signal Transfer and DirectConnect Technolgy combines key imaging benefits: excellent image quality, high patient comfort, and unmatched flexibility. Foot/Ankle 16 for examinations of the left or right foot and ankle region consists of a base plate and an iPAT compatible 16-channel coil and allows high resolution imaging of the foot and ankle within one examination. Foot/Ankle 16 is a cable-less coil and will be connected via DirectConnect for fast and easy patient preparation.
1	08857828	**UPS Cable #Tim** Power cable for connecting the UPS Powerware PW 9130-3000i (14413662) to the ACC of MAGNETOM Tim and MAGNETOM Tim+Dot systems for backing up the computer. Standard cable length: 9 m.
1	14413662	**UPS Powerware PW9130G-3000T-XLEU** UPS system Eaton PW9130G-3000T-XLEU for MAGNETOM Tim, MAGNETOM Tim+Dot and MAGNETOM Symphony systems for safeguarding computers. Power output: 3.0 kVA / 2.7 kW Bridge time: 5 min full load / 14 min half load Input voltage: 230 VAC
1	14413663	**UPS Battery module** UPS battery module Eaton PW 9130N-3000T-EBM for all MAGNETOM Tim, MAGNETOM Tim+Dot and MAGNETOM Symphony systems for safeguarding computers. Extension for: PW9130i-3000T Battery type: Closed, maintenance-free Extension of the bridge time to: 24 minutes with a module Dimensions (H x W x D): Battery module: 346 x 214 x 412 mm incl. bracket set Weight: approx. 50 kg
1	MR_STD_RIG_INST	**MR Standard Rigging and Installation** MR Standard Rigging and Installation This quotation includes standard rigging and installation of your new MAGNETOM system Standard rigging into a room on ground floor level of the building during standard working hours (Mon. - Fri./ 8 a.m. to 5 p.m.) It remains the responsibility of the Customer to prepare the room in accordance with the SIEMENS planning documents Any rigging requiring a crane over 80 tons and/or special site requirements (e.g. removal of existing systems, etc.) is an incremental cost and the responsibility of the Customer. All other "out of scope" charges (not covered by the standard rigging and installation) will be identified during the site assessment and remain the responsibility of the Customer.
1	MR_BTL_INST ALL	**MR Standard Rigging & Install**
1	MR_CRYO	**Standard Cryogens**
1	MR_PM	**MR Project Management** A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemen's equipment. The assigned PM will work with the customer's facilities management, architect or building contractor to assist you in ensuring that your site is ready for installation. Your PM will provide initial and final drawings and will coordinate the scheduling of the equipment, installation, and rigging, as well as the initiation of on-site clinical education.

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PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
1	MR_INITIAL_32	**Initial onsite training 32 hrs** MR_INITIAL_32 Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	MR_FOLLOWUP_24	**Follow-up training 24 hrs** Up to (24) hours of follow-up on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	MR_INT_DOT_BCLS	**MR Dot Training Class** Tuition for (1) imaging professional to attend Classroom Course at Siemens Training Center. The objectives of this class are to introduce the user interface of the common syngo platform, including Dot, and instructions on building protocols, demonstration of software functions, and hands-on sessions. This class includes lunch, economy airfare, and lodging for (1) imaging professional. All arrangements must be arranged through Siemens designated travel agency. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	MR_A_INT_DOT_BCLS	**MR Dot Training Class** Tuition for (1) imaging professional to attend Classroom Course at Siemens Training Center. The objectives of this class are to introduce the user interface of the common syngo platform, including Dot, and instructions on building protocols, demonstration of software functions, and hands-on sessions. This class includes lunch, economy airfare, and lodging for (1) imaging professional. All arrangements must be arranged through Siemens designated travel agency. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	MR_ADD_32	**Additional onsite training 32 hours** Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist if applicable.This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	4MR5142869	**Armrest #MR**
1	MR_PREINST_DOCK	**T+D Preinstall kit for dockable table**
1	KKTECOMR_45	**KKT ECOCHILLER 122L** The KKT ECO 122 -L chiller is a dedicated 20°C cooling system for MAGNETOM Aera which automatically adapts to the different cooling requirements (e.g. system in operation, standby, ...) to reduce the energy consumption for cooling. The cooling system must be used in combination with the IFP (Interface Panel), if there is no on-site chilled water supply at all. The IFP is included in the scope of supply.
1	CHILINST_AVT	**Chiller Start-up and Warranty for TIM**
1	ML11685	**MR Wall sign -English** Highly durable 1mm PVC wall signs with high-tack, double-back tape. Sticks to most any surface. English. 12" x 18".

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PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
1	MRISMNS0001	**MRI Patient Audio System** The MRI Patient Audio System is to be installed in the technologist room and is connected to the Siemens intercom system. The package provides the following benefits: • Create custom, commercial-free radio stations based on artist, song or genre preferences • Avoid any AM/FM tuning issues that may occur in RF-shielded rooms • Compatible with all popular audio apps (e.g. tunein, Spotify, iTunes, Audible, iHeartRadio, Pandora, etc.) Includes amplifier; all cables and adapters; Bose Companion 2 technologist speakers; 3.5 mm to RCA cable; and customized iPAD Mini with all original accessories and TuneIn Radio Pro App (pre-paid and installed). The MR Stereo can play regular radio, internet radio (depending on quality of and access to Radio wave signals and Wi-Fi signals) and device (iPAD) stored audio content. Optimal performance requires access to radio wave signals for regular radio and Wi-Fi signals for Internet radio through the facility's wireless network. Installation is not included unless purchased with the Siemens system. Includes 3 year limited liability warranty on all system components through MRIaudio.
1	MR_PR_ELEVATE_2	**MR Elevate Program**
1	14407261	**MR Workplace Container, 50cm** 50 cm wide extra case for the syngo host computer with sliding front door to allow change of storage media (CD/DVD/USB).
1	14407258	**MR Workplace Table 1.2m** Table suited for syngo Acquisition Workplace and syngo MR Workplace based on syngo Hardware.
1	14418596	**SWI** Susceptibility Weighted Imaging is a high-resolution 3D imaging technique for the brain with ultra-high sensitivity for microscopic magnetic field inhomogeneities caused by deoxygenated blood, products of blood decomposition and microscopic iron deposits. Among other things, the method allows for the highly sensitive proof of cerebral hemorrhages and the high-resolution display of venous cerebral blood vessels.
1	14441728	**NATIVE syngo** Integrated software package with sequences and protocols for non-contrast enhanced 3D MRA with high spatial resolution. syngo NATIVE particularly enables imaging of abdominal and peripheral vessels and is an alternative to MR angiography techniques with contrast medium, especially for patients with severe renal insufficiency.
1	14430439	**RESOLVE** RESOLVE is a diffusion-weighted, readoutsegmented EPI sequence optimized towards high resolution imaging with reduced distortions. The sequence uses a very short echospacing compared to single-shot EPI, reducing susceptibility effects. A 2D-navigator correction is applied to avoid artefacts due to motion-induced phase errors. This combination allows diffusion weighted imaging of the whole body.
1	14441731	**Tim Whole Body Suite #T+D** Tim Whole Body Suite puts it all together. This suite enables table movement for imaging of up to 205 cm (6' 9") FoV without compromise. In combination with Tim's newly designed ultra highdensity array higher spatial and temporal resolution can be achieved along with unmachted flexibility of any coverage up to Whole Body. For faster exams and greater diagnostic confidence.
1	14441734	**Body 6 #Ae** Flexible, universal 6-channel receive coil with 6 integrated preamplifiers. Elements are arranged in 2 rows of 3 elements each. Main features: - Integrated operation with the Spine 18/24. - iPAT-compatible. - Dual-Density Signal Transfer. - SlideConnect(tm) technology for easy coil set up.
1	14441788	**Hand/Wrist 16 #Ae** The new Tim 4G coil technology with Dual Density Signal Transfer and SlideConnect Technology combines key imaging benefits: excellent image quality, high patient comfort, and unmatched flexibility. Hand/Wrist 16 for examinations of the left or right hand and wrist region consists of a base plate and an iPAT compatible 16-channel coil and allows high resolution imaging of the wrist and the hand within one examination. Hand/Wrist 16 will be connected via a SlideConnect plug for fast and easy patient preparation.
1	14441789	**Tx/Rx 15-channel Knee Coil DDST #Ae** New 15-channel transmitter/receiver coil for joint examinations in the area of the lower extremities. Main features : - 15-element design (3x5 coil elements) with 15 integrated preamplifiers, - iPAT-compatible - SlideConnect Technology

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PRELIMINARY PROPOSAL

Qty	Part No.	Item Description
1	14441787	**Spine Dot Engine #T+D** The Spine Dot Engine provides optimized cervical, thoracic and lumbar spine imaging. Amongst various features to support a streamlined spine workflow is AutoLabeling of the vertebrae.
1	14416963	**2/4/8-ch Sentinelle BreastCoil #Ae** The 2-/4-/8-channel Sentinelle Breast Coil consists of a positioning frame with exchangeable coils with different numbers of channels as described in detail in the E text. The 2-/4-/8-channel Sentinelle Breast Coil can be used as an 8-channel imaging coil, 4-channel biopsy coil for lateral biopsy access as well as a 2-channel biopsy coil for medial biopsy access. This coil provides a large biopsy access. The preamplifiers are integrated into the coil. The coil is iPAT-compatible. A positioning guidance is provided.
1	MR_TRADE_IN_ALLOW	**MR Trade-in-Allowance**
1	MR_BUDG_ADDL_RIG	**Budgetary Add'l/Out of Scope Rigging**

System Total: $1,219,044

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PRELIMINARY PROPOSAL

OPTIONS on Quote Nr: **1-BCLQF3 Rev. 0**

OPTIONS for MAGNETOM Aera

All items listed below are OPTIONs and will be included on this system ONLY if initialed: *(See Detailed Technical Specifications at end of Proposal.)*

Qty	Part No.	Item Description	Extended Price
1	14416952	**Coil Storage Cart #T+D** Specially designed non-ferromagnetic cart for easy storage of the most commonly used coils and accessories.	+ $3,450
1	14436740	**syngo BreVis Biopsy #T +D** syngo BreVis Biopsy is a task card for easy and effective breast biopsy planning for the Acquisition Workplace (AWP).	+ $20,700

FINANCING: The equipment listed above may be financed through Siemens. Ask us about our full range of financial products that can be tailored to meet your business and cash flow requirements. For further information, please contact your local Sales Representative.

Siemens Healthcare is pleased to submit this Preliminary Pricing Proposal. A Preliminary Pricing Proposal is provided for planning purposes only; it is not contractually binding. To receive a contractually binding proposal for the Products listed above, inclusive of Terms, Conditions, and Warranty coverage, please contact your Siemens Healthcare Sales Representative.

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PRELIMINARY PROPOSAL

Detailed Technical Specifications

MAGNETOM Aera

Part No. / Product	Description
14441600 MAGNETOM Aera - System	MAGNETOM Aera - the first 1.5T Tim+Dot system - integrates the next generation Tim (Total imaging matrix) - Tim 4G and the Siemens unique Dot (Day optimizing throughput) engines enabling workflow efficiency combined with higher diagnostic confidence due to consistent results. The system includes: **Tim 4G+Dot** Tim 4G provides increased patient comfort and optimized workflow efficiency. Only one patient setup, no repositioning, no changing of coils. Ultra-light-weighted coils with high density of coil elements for maximized patient comfort and increased SNR. Feet-first positioning for almost all examinations possible reduces claustrophobia. Tim 4G with its 4G flexibility, 4G accuracy and 4G speed brings image quality and acquisition speed to a new level. Dot offers a customizable framework for patient personalization, user guidance and exam automation. Optimized scan strategies are provided and can be selected based on patient condition, which allow for high quality exams even when conditions change. Integrated decision points allow the user to easily add or remove one or a group of protocols with one click. Step by step image and text guidance guides novice users even through the most complicated exams. Exam automation allows optimal timing for breathing, scanning, planning or contrast arrival. Dot can be easily customized to follow the individual standards of care. Dot is personalized, guided and automated and designed to improve workflow efficiency and image consistency. MAGNETOM Aera with its 70 cm Open Bore design and a system length of only 145 cm gives a patient friendly appearance that can significantly help patients with anxiety or claustrophobia. **Magnet:** - Ultra-short 137 cm long (145 cm with covers), whole-body superconductive 1.5T magnet with active shielding (AS) technology with counter coils - External Interference Shielding (E.I.S.) - Excellent homogeneity enabled by TrueForm magnet design which allows for a cylindrically optimized homogeneity volume resulting in higher image quality (50 × 50 × 45 cm^3 DEV, typ. 3.1 ppm based on the 24-plane plot method) - The magnet has a helium capacity of approximately 1,280 liters and a typical Helium boil-off rate of 0 l/yr during typical, undisturbed clinical operation depending on the sequences used and examination time, and provided the system is serviced in regular intervals. - It has an integrated magnet cooling system. **Gradient system** : - Actively shielded water-cooled world-class gradient system - True Form Gradient Design - All axes force compensated **DirectRF - RF Transmit/Receive System**: - Fully integrated Transmit and Receive path in the magnet housing including extremely compact water-cooled solid state amplifier with 26.1 kW peak power - High dynamic range - Immediate feedback loop for real-time sequence adaptation - Integrated no tune transmit/receive Body Coil - The revolutionary Tim 4G technology allows connecting up to 204 coil elements simultaneously enabling

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	higher SNR and iPAT in all directions. No repositioning of patients is needed even for large Field of View examinations. - Dual-Density Signal Transfer enables ultra-high density coil design by integrating key RF components into the local coil. **Tim 4G Coils**: The new Tim 4G coil technology with Dual-Density Signal Transfer, DirectConnect and SlideConnect technology combines key imaging benefits: Excellent image quality, high patient comfort, and unmatched flexibility. The Tim 4G coils are designed for highest image quality combined with easy handling. The high coil element density increases SNR and reduces examination times. DirectConnect and SlideConnect™ technology reduce patient set up time significantly. The coils are designed with the patient in mind. Light weighted coils and open design ensure highest patient comfort which results in better patient cooperation and image quality. No coil changing with multi-exam studies saves patient setup- and table time. AutoCoilSelect enables dynamic, automatic, or interactive selection of the coil elements within the Field of View and speeding the exam preparation at the host. All coils are time-saving "no-tune" coils. A comprehensive set of pads for comfortable and stable patient positioning together with safety straps are included. - Head/Neck 16 The 16-channel coil with its 16 integrated pre-amplifiers ensures excellent signal-to-noise ratio. The unique DirectConnect technology allows users connecting the 16 coil elements of the Head/Neck 16 without cables. The patient friendly open design allows for maximum patient comfort which is supported in addition by a look-out mirror for claustrophobic patients. The high channel coil is iPAT compatible in all directions. The open and light design of the upper coil part increases patient comfort and is removable for easy patient handling. The lower coil part may remain on the table for most of the examinations and can be used without the upper part .The Head/Neck 16 and Spine 24 are smoothly integrated into the patient table, thus enabling high flexibility in imaging and fewer coil changes and easy handling when switching patients. The Head /Neck 16 coil is equipped with two removable cushioned head stabilizers for stable and comfortable patient positioning. The Head/ Neck 16 can be used for applications like head examinations, neck examinations, MR Angiography, combined head/neck examinations or for imaging of the TMJ (temporomandibular joints). Typically combined with the Spine 24 and Body 6 or Peripheral Angio 36 but also other combinations e.g. with flexible coils like the Flex Large 4 are possible. - Body 6 The 6-channel coil with its 6 integrated pre-amplifiers ensures excellent signal-to-noise ratio. The SlideConect plug allows for fast and easy patient preparation resulting in less table time. Fast acquisition times enabled by iPAT in all directions. The light-weighted coil ensures highest patient comfort. The Body 6 can be combined with further Body 6 coils for larger coverage and is typically used in combination with the Spine 24 for examinations of the thorax, abdomen, pelvis or hip. The Body 6 can also be used for cardiac or vascular applications. Through its perfect combinability with the Spine 24, further Body 6 (optional), the Peripheral Angio 36 (optional), but also the Head/Neck 16 and all flexible coils (e.g. Flex Large 4, Flex Small 4) it contributes for a broad range of indications up to whole-body imaging. - Spine 24 The 24-channel coil with its 24 integrated pre-amplifiers ensures excellent signal-to-noise ratio. The unique DirectConnect technology allows connecting the 24 coil elements of the Spine 24 without the need to plug in any cable. The patient friendly ergonomical design allows for maximum patient comfort. The high element coil is iPAT compatible in all directions. Smoothly integrated into the patient table the Spine 24 may remain on the patient table for nearly all exams. The Spine 24 is typically combined with Body 6, Head/Neck 16, Peripheral Angio 36 (optional) or Flex Large 4, Flex Small 4.

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	- Flex Large 4/ Flex Small 4 Light-weighted, very flexible, iPAT compatible, 4-element no-tune receiver coils which are made of soft and smooth material. The coils can be wrapped around or used flat. Both coils can be connected via Flex Coil interface. One Flex Coil interface is already delivered as standard. The coils can be used for different examinations ranging from examinations of the extremities to abdominal examinations. **Tim Table** - The maximum scan range of the Tim Table is 140 cm. A scan range of 205 cm can be achieved with the Tim Whole Body Suite (optional) - The maximum patient weight of 250 kg (550 lbs) is valid for horizontal and vertical movements, which ensures maximized patient comfort for obese patients. - The patient table can be lowered to a minimum height of 52 cm from the floor, for easier patient positioning and better accessibility for geriatric, pediatric or immobile patients. An infusion stand is integrated to ensure fast patient set up also for critical patients. - Multiple Tim4G coils can be connected at once for efficient and patient friendly examinations. - The Tim Table can be moved with two clicks into the isocenter - one click to the upmost position and one click into the isocenter. **Dot (Day Optimizing Throughput) Engine** Dot multiplies the power of Tim resulting in greater image consistency and diagnostic confidence **Dot Control Centers and Dot Display** - The ergonomically designed Dot Control Centers are integrated left and right into the front covers for controlling table movement and interaction with the Dot Display. The Dot Control Centers are well illuminated for easy visual recognition. - Automated table move up to upmost position, to center position or Home position facilitate smooth patient preparation and will reduce table time - Variable (6 levels) ventilation and lighting inside the magnet bore or volume adjustments are possible for increased patient comfort - The Dot Display provides on board guidance for patient set up where it's needed - directly at the scanner. Information such as patient name or exam type or required patient position, guidance for ECG set up and immediate visualization of physiological curves will be provided for convenient operation. - Almost all table control functions, including ventilation and illumination of the magnet bore, can be also controlled from the operator console for convenient operation. **Dot Technology** Dot gives uniquely tailored, optimized scans configurable to patient condition or clinical question. Dot provides patient personalization, user guidance and exam automation and is of course configurable by the user to adapt to the different clinical needs and standards of care. **Brain Dot Engine** The Brain Dot Engine provides guided and automated workflows customizable to the site specific standards of care for general brain examinations. The Brain Dot Engine supports the user in achieving reproducible image quality with increased ease of use and time efficient exams. The brain workflow can be personalized to the individual patient condition and clinical need. Several predefined strategies are included, which can be easily selected with one click. They can be changed at any time during the brain workflow. Protocols tailored for use of contrast media are integrated. - Standard: Standard examination with 2D protocols - Resolution focus: Examination with 3D protocols (with e.g. SPACE) for detailed views - Speed focus: Examination with fast 2D protocols (with e.g. HASTE) for further speeding up the exam

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PRELIMINARY PROPOSAL

Part No. / Product	Description

(Continued)
14441600
MAGNETOM Aera - System
	- Motion insensitive: Examination with *syngo* BLADE protocols
	- to minimize and correct for the effects of motion automatically
	
	Step-by-step user guidance is seamlessly integrated. Example images and guidance text are displayed for each individual step of the scanning workflow. Both - images and text - are easily configurable by the user.
	
	Easy positioning of the patient with AutoPosition. The patient is automatically placed at the isocenter without any laser marking required.
	
	AutoAlign Head provides automated, positioning and alignment of slice groups to the anatomy, relying on multiple anatomical landmarks. Besides basic brain positioning, AutoAlign Head computes reference position for several other brain structures such as the inner ear, the orbits and the optic nerve.
	
	Automatic real-time calculation of trace-weighted images and ADC maps with Inline Diffusion-Technology.
	
	Easy rerun or repeat with functionality allows for reduced table timeAlternatively an exam can be repeated with a changed strategy.
	
	The Brain Dot Engine as all Dot engines can be modified by the user to their individual standard of care.
	
	Tim Application Suite
	The Tim Application Suite offers a complete range of clinically optimized sequences, protocols and workflow functionalities for all body regions. Excellent head-to-toe imaging can be accomplished with the sequences and features included in this application suite. To enable this comprehensive application range, ten dedicated application packages have been included.
	
	- *syngo* TimCT FastView
	- Neuro Suite
	- Angio Suite
	- Cardiac Suite
	- Body Suite
	- Onco Suite
	- Breast Suite
	- Ortho Suite
	- Pediatric Suite*
	- Scientific Suite
	
	***syngo* TimCT FastView**
	syngo TimCT FastView is a "one go" localizer for the whole body or large body regions such as the whole spine or the whole abdomen. It acquires the complete extended Field of View in one volume with isotropic resolution. Transversal, coronal and sagittal reformats of the volume are calculated inline and displayed for planning subsequent exams. Moreover, while planning is underway, adjustments are acquired automatically for further time savings in subsequent measurements.
	syngo TimCT FastView runs without laser light positioning to further streamline the workflow for several indications.
	
	Neuro Suite
	Comprehensive head and spine examinations can be performed with dedicated programs. High resolution protocols and fast protocols for uncooperative patients are provided. The Neuro Suite also includes protocols for diffusion imaging, perfusion imaging, and fMRI. It includes for example:
	- EPI sequences and protocols for diffusion, perfusion and fMRI for advanced neurological applications. Diffusion weighted imaging is possible with up to 16 b-values in the orthogonal directions. Dynamic Analysis software (included in standard configuration) enables calculation of:
	  - ADC maps
	  - t-test maps from the EPI images for fMRI
	  - Time-to-Peak maps for perfusion analysis.
	- Whole spine protocols acquire in multiple steps via software controlled table movement in a single click.

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	- 3D isotropic resolution volume imaging using T1 3D MPRAGE / 3D FLASH, SPACE DarkFluid, T2 SPACE and 3D TSE - T2-weighted high resolution 3D Restore protocols optimized for inner ear examinations - Whole-spine protocols in multiple steps with software controlled table movement - 2D and 3D MEDIC protocols for T2-weighted imaging, particularly for C-spine examinations in axial orientation where reproducibility is difficult due to CSF pulsations and blood flow artifacts - 3D Myelograms with 3D HASTE and 3D True-FISP for anatomical details - Dynamic sacro-iliac joint imaging after contrast administration using a fast T1-weighted FLASH 2D sequence - Spine diffusion protocols to differentiate osteoporosis versus tumor infiltration and post-radiotherapy changes versus residual tumor with PSIF sequence - Precision filter for high spatial accuracy e.g. for neuro intra-operative imaging and stereotactic planning - 3D CISS (Constructive Interference in Steady State) for excellent visualization of fine structures such as cranial nerves. High resolution imaging of inner ear and spine - AutoAlign Head LS providing a fast, easy, standardized, and reproducible patient scanning supporting reading by delivering a higher and more standardized image quality **Angio Suite** Excellent MR Angiography can be performed to visualize arteries and veins without contrast agent. - *Non-contrast-MRA and venography* - 2D and 3D Time-of-Flight (ToF) protocols for MRA for the Circle of Willis, carotids, neck vessels, and breath-hold protocols for abdominal vessels - Triggered 2D ToF sequences for non-contrast MRA, particularly of the abdomen and the extremities - 2D/3D Phase-Contrast - MR venography with 2D/3D Time-of-Flight (ToF) and Phase-Contrast - TONE (Tilted Optimized Non-saturation Excitation) and MTC (Magnetization Transfer Contrast) techniques for improved Contrast-to-Noise Ratio (CNR) *Image processing tools* - MPR, MIP, MinIP, and 3D SSD (Multiplanar Reconstruction, Maximum Intensity Projection, Minimum Intensity Projection, Shaded Surface Display) - Inline MIP for immediate results - Inline subtraction of pre- and post-contrast measurements - Inline standard deviation maps of Phase-Contrast measurements for delineation of arteries and veins **Cardiac Suite** The cardiac suite covers comprehensive 2D routine cardiac applications, ranging from morphology and ventricular function to tissue characterization. Featuring *syngo* BEAT 2D in conjunction with iPAT and T-PAT techniques. *Cardiac views* - Fast acquisition of the basic cardiac orientations for further examination planning - Cardiac scouting provides users with a step-by-step procedure for the visualization and planning of typical cardiac views, e.g. based on TrueFISP or Dark Blood TurboFLASH: short axis, 4-chamber and 2-chamber views. *syngo BEAT* - Unique tool for fast and easy cardiovascular MR imaging - E.g. 1 click change from FLASH to TrueFISP for easy contrast optimization - 1-click to switch arrhythmia rejection on / off - 1-click change from Cartesian to radial sampling to increase effective image resolution (e.g. in pediatric patients) and avoid folding artifacts in large patients *Visualization of structural cardiovascular pathologies with CMR - syngo BEAT* - Breath-hold and free breathing techniques for strong contrast between the blood and vascular structures. Dark Blood TSE and HASTE imaging are available for the structural evaluation of the cardiothoracic anatomy,

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	including vessels or heart valves. Cine techniques (FLASH & TrueFISP) for high-resolution valve evaluation - Multiple contrasts such as T1- and T2-weighted imaging for use in diseases such as myocarditis (inflammation / hyperaemia), ARVD (fibrous-fatty degeneration) or acute myocardial infarction (edema) - Dark-blood TSE with motion compensation for high-quality vessel wall imaging in small or large vessels *Tools for rapid evaluation of left or right ventricular function* - Acquisition of a stack of short-axis slices (standard segmented FLASH, or advanced segmented TrueFISP) - Automatic adjustment of the acquisition window to the current heart rate - Use of the Inline ECG for graphical ECG triggering setup - Retrospective gating with cine sequences (TrueFISP, FLASH) - Protocols for whole-heart coverage - iPAT integration for highest temporal and spatial resolution - Real-time imaging in case the patient is not able to hold his breath *imaging and tissue characterization with syngo BEAT* - Protocols for high-contrast and high-resolution tissue characterization - Protocols for stress and rest imaging with TrueFISP or TurboFLASH contrast support the acquisition of multiple slices with high resolution and arbitrarily adjustable slice orientation for each slice - T-PAT with mSENSE and GRAPPA for advanced parallel imaging provides fast high-resolution dynamic imaging - Segmented IR TrueFISP / FLASH with TI scout for optimization of tissue contrast - Advanced tissue characterization with 2D phase-sensitive IR (PSIR) sequences TrueFISP and FLASH contrast. Magnitude and phase-sensitive images with one acquisition - Simple: no adjustment of inversion time (TI) necessary with PSIR technique - Ungated single-shot PSIR imaging for tissue characterization under difficult conditions: free-breathing technique that can be applied even in case of arrhythmia Physiological Measurement Unit (PMU) - Wireless Physio Control - Synchronizes the measurement with the physiological cycles (triggering to minimize motion artifacts caused by cardiac and respiratory movements) - Wireless Sensors - Wireless Vector ECG / respiration and pulse sensors for physiologically synchronized imaging, rechargeable battery-powered - for optimized patient handling - Physiological Signals Display - ECG (3 channels) - Pulse - Respiration - External Trigger Input Display ECG Triggering: - Acquisition of multiple slices, e.g. of the heart, at different phases of the cardiac cycle - Excellent image quality by synchronizing data acquisition with cardiac motion - Peripheral Pulse Triggering: Reduces flow artifacts caused by pulsatile blood flow - Excellent image quality by synchronizing data acquisition to the pulsatile blood flow - Respiratory Triggering: Excellent image quality by synchronizing data acquisition with the respiratory motion - External Triggering: Interface for trigger input from external sources (e.g. Patient Monitoring System) inside the examination room - Interface for trigger input from external sources (e.g. pulse generator, trigger sources for fMRI) outside the examination room - Optical trigger output for fMRI - Retrospective gating for ECG, peripheral pulse, and external trigger input **Breast Suite** MR imaging has proven a very high sensitivity for breast lesions and is the gold standard for the examination of

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Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	silicone implants. Extremely high spatial and temporal resolution can be achieved in very short measuring times by using iPAT with GRAPPA. Excellent soft tissue differentiation, customized protocols (e.g. with fat saturation or water excitation or silicone excitation), as well as flexible multiplanar visualization allow for fast, simple and reproducible evaluation of MR breast examinations. This package includes: - Quantitative evaluation and fast analysis of the data with colorized Wash-in, Wash-out, Time-To-Peak, Positive-Enhancement-Integral, MIPtime and combination maps with Inline technology or for offline calculation - High-resolution 2D protocols for morphology evaluation - High-resolution 3D protocols covering both breasts simultaneously - Protocols to support interventions (fine needle and vacuum biopsies, wire localization) - Protocols for evaluating breasts with silicone implants - Automatic and manual frequency adjustment, taking into account the silicone signal - Detection of the silicone signal either to suppress the silicone signal, if the surrounding tissue is to be evaluated, or to suppress the tissue signal in order to detect an implant leakage - SPAIR - robust fat sat (robust fat suppression using an adiabatic frequency selective inversion pulse) - DIXON - 2-point Dixon with 3D VIBE, the following contrasts can be obtained: in-phase, opposed phase, fat and water image. - iPAT with GRAPPA for maximum resolution in short time - Inline subtraction and MIP display - Offline subtraction, MPR and MIP display - *syngo* REVEAL: diffusion imaging for breast exams - iPAT Extension allows bilateral 3D sagittal breast imaging with Fat Sat or Water excitation The Breast Suite also includes: ***syngo* VIEWS (Volume Imaging with Enhanced Water Signal)** - bilateral - both breasts are examined simultaneously - axial - the milk ducts are directly displayed - fat-saturated or water-excited - fat complicates clinical evaluation and is suppressed - near-isotropic 3D measurement - the same voxel size in all three directions for reconstruction in any slice direction - submillimeter voxel - highest resolution for precise evaluation **Body Suite** Body Suite covers your needs for clinical body applications. Ultrafast high resolution 2D and 3D protocols are provided for abdomen, pelvis, MR Colonography, MRCP, dynamic kidney, and MR Urography applications. Siemens unique 2D PACE technique makes body imaging easy allowing for multi-breath hold examinations as well as free breathing during the scans. Motion artifacts are greatly reduced with 2D PACE Inline technology. This package includes: - Free breathing 2D PACE applications with 2D/3D HASTE (RESTORE) and 2D/3D TSE (RESTORE) - Optimized fast single shot HASTE protocols and high-resolution 3D RESTORE protocols based on SPACE and TSE for MRCP and MR Urography examinations ***ABDOMEN:*** *2D:* - T1w (FLASH) breath-hold scans +/- Fat Sat (SPAIR, Q-FatSat, in-/opp-phase) - T2w (HASTE, TSE/BLADE, EPI) breath-hold scans +/- Fat Sat (SPAIR, FatSat, STIR) - T1w (TFL) triggered scans (2D PACE free breathing) in-/opp-phase - T2w (HASTE, TSE/BLADE, EPI) triggered scans (2D PACE free breathing) +/- Fat Sat (SPAIR,FatSat, STIR) as well as HASTE- and TSE-multi-echo - Optimized fast single shot HASTE protocols and high-resolution 3D RESTORE protocols based on SPACE and TSE for MRCP and MR urography examinations *3D:* - Dixon (VIBE 2pt-Dixon) breath-hold scans, following contrasts can be obtained: in-phase, opposed phase, fat

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	and water image. - Dynamic (VIBE + Q-FatSat) protocols for best visualization of focal lesions with high spatial and temporal resolution - Colonography bright lumen with T2-weighted TrueFISP and dark lumen with T1-weighted VIBE - CAIPIRINHA enables VIBE sequence with improved iPAT2 algorithm to improved abdominal dynamic scans as well as SNR. Reduced patient stress can be achieved through reduced acquisition (and breathhold) times. ***PELVIS:*** - High-resolution T1w, T2w pelvic imaging (prostate, cervix) - Isotropic T2w SPACE 3D protocols for tumor search in the pelvis - Dynamic volume examinations with 3D VIBE - *syngo* REVEAL: diffusion imaging for liver and whole body exams **Onco Suite** MR imaging has an excellent advantage of soft tissue contrast, multi-planar capabilities and the possibility of selectively suppressing specific tissue e.g. fat or water. This helps visualize pathologies, particularly metastases. The Onco Suite features a collection of sequences as well as protocols and evaluation tools that guide through a detailed screening of clinical indications, such as in hepatic neoplasms. This package includes: - STIR TSE and HASTE, FLASH in-phase and opposed-phase protocols with a high sensitivity to metastases visualization - Dynamic imaging protocols for assessment of the kinetic behavior for lesion visualization and characterization - Quantitative evaluation and fast analysis of the data with colorized Wash-in, Wash-out, Time-To-Peak, Positive-Enhancement-Integral, MIPtime and combination maps with Inline technology or for offline calculation - Display and analysis of the temporal behavior in selected regions of interest with the included MeanCurve postprocessing application. This includes the capability of using additional datasets as a guide for defining regions of interest even faster and easier than before. - *syngo* REVEAL: diffusion imaging for liver and whole body exams Dedicated prostate protocols for detection, localization, and staging of tumors and recurrences - *syngo* REVEAL (diffusion-weighted imaging) - Protocols with high temporal resolution allow time course evaluation based on pharmacokinetic modeling **OrthoSuite** Ortho Suite is a comprehensive collection of protocols for joint and spine imaging. MR imaging is especially suitable for avascular necrosis and internal derangements. The protocols included in this Suite can also be applied for imaging of tumors and infections. This package includes: - 2D TSE protocols for PD, T1 and T2-weighted contrast with high in-plane resolution and thin slices - 3D MEDIC, 3D TrueFISP protocols with water excitation for T2-weighted imaging with high in-plane resolution and thin slices - High resolution 3D VIBE protocol for MR arthrography (knee, shoulder and hip) - 3D MEDIC, 3D TrueFISP, 3D VIBE protocols with water excitation having high isotropic resolution, optimized for 3D post-processing - PD SPACE with fat saturation and T2 SPACE with high isotropic resolution optimized for 3D post-processing - Whole spine single-step or multi-step protocols - Excellent fat suppression in off-center positions, e.g. in the shoulder due to high magnet homogeneity - Dynamic TMJ and ilio-sacral joint protocol - Susceptibility-insensitive protocols for imaging in the presence of a prosthesis - Multi-Echo SE sequence with up to 32 echoes for the calculation of T2 time maps (calculation included in the Scientific Suite) - High resolution 3D DESS (Double Echo Steady State): T2 / T1-weighted imaging for excellent fluid-cartilage differentiation

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Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	*syngo WARP* Susceptibility Artifact Reduction* - 2D TSE sequences with high bandwidth protocols tailored to reduce susceptibility artifacts. Available protocols include T1-weighted, T2-weighted, proton density and STIR contrast. * The MRI restrictions (if any) of the metal implant must be considered prior to patient undergoing MRI exam. MR imaging of patients with metallic implants brings specific risks. However, certain implants are approved by the governing regulatory bodies to be MR conditionally safe. For such implants, the previously mentioned warning may not be applicable. Please contact the implant manufacturer for the specific conditional information. The conditions for MR safety are the responsibility of the implant manufacturer, not of Siemens. **Pediatric* Suite** The parameters for pediatric imaging vary significantly in comparison to the parameters for adults. The reasons are developing tissues, body size, faster heart rates and restricted compliance with breath-hold commands. Protocols can be adapted for imaging infants. - MR scanning has not been established as safe for imaging fetuses and infants under two years of age. The responsible physician must evaluate the benefits of the MR examination compared to those of other imaging procedures. - **Scientific Suite** Scientific Suite supports the scientifically oriented user with an easy access to application-specific data for further processing and advanced image computation methods. - Support of USB memory sticks - Access to the file system by means of a secure and convenient browser - Anonymization of patient data - Easy generation of AVIs and screenshots for integration into presentations and training videos - Export function for tables, statistics and signal-time-courses in a communal format (MeanCurve, Spectroscopy, DTI evaluation) - Advanced image computation methods such as T2 and T1 time calculation, addition, subtraction, multiplication, division, and integration of images The sequences, features and techniques for acquisition and reconstruction included in the Tim Application Suite are described in detail below. **Sequences** Spin Echo family of sequences: - Spin Echo (SE) - Single, Double, and Multi Echo (up to 32 echoes); Inversion Recovery (IR) - 2D / 3D Turbo Spin Echo (TSE) - Restore technique for shorter TR times while maintaining excellent T2 contrast; TurboIR: Inversion Recovery for STIR, DarkFluid T1 and T2, TrueIR; Echo Sharing for dual-contrast TSE - 2D / 3D HASTE (Half-Fourier Acquisition with Single Shot Turbo Spin Echo) - Inversion Recovery for STIR and DarkFluid contrast - SPACE for 3D imaging with high isotropic resolution with T1, T2, PD, and DarkFluid Contrast Gradient Echo family of sequences: - 2D / 3D FLASH (spoiled GRE) - dual echo for in- / opposed phase imaging 3D VIBE (Volume Interpolated Breathhold Examination) - quick fat saturation; double echo for in-phase / opposed phase 3D imaging; DynaVIBE: Inline 3D elastic motion correction for multi phase data sets of the abdomen; Inline Breast Evaluation - 2D / 3D MEDIC (Multi Echo Data Image Combination) for high resolution T2 weighted orthopedic imaging and excellent contrast - 2D / 3D TurboFLASH - 3D MPRAGE; single shot T1 weighted imaging e.g. for abdominal imaging during free breathing - 3D GRE for fi eld mapping

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	- 2D / 3D FISP (Fast Imaging with Steady State Precession) - 2D / 3D PSIF - PSIF Diffusion - Echo Planar Imaging (EPI) - diffusion-weighted; single shot SE and FID e.g. for BOLD imaging and Perfusion-weighted imaging; 2D / 3D Segmented EPI (SE and FID) - ce-MRA sequence with Inline subtraction and Inline MIP - 2D / 3D Time-of-Flight (ToF) Angiography - single slab and multi slab; triggered and segmented - 2D / 3D Phase Contrast Angiography - *syngo* BEAT Tool - TrueFISP segmented; 2D FLASH segmented; - Magnetization-prepared TrueFISP (IR, SR, FS); IR TI scout; Retrogating Standard Fat/Water Imaging - Fat and Water Saturation. Additional frequency selective RF pulses used to suppress bright signal from fatty tissue. Two selectable modes: weak, strong - Quick FatSat - SPAIR: robust fat suppression for body imaging using a frequency selective inversion pulse - Fat / Water Excitation. Spectral selective RF pulses for exclusive fat / water excitation - Dixon technique for fat and water separation - available both based on VIBE (2 point Dixon) Standard Techniques - True Inversion Recovery to obtain strong T1-weighted contrast - Dark Blood inversion recovery technique that nulls fluid blood signal - Saturation Recovery for 2D TurboFLASH, gradient echo, and T1-weighted 3D TurboFLASH with short scan time (e.g. MPRAGE) - Freely adjustable receiver bandwidth, permitting studies with increased signal-to-noise ratio - Freely adjustable flip angle. Optimized RF pulses for image contrast enhancement and increased signal-to-noise ratio - MTC (Magnetization Transfer Contrast). Off-resonance RF pulses to suppress signal from certain tissues, thus enhancing the contrast. Used e.g. in MRA - Argus viewer for reviewing cine studies• - Report Viewer for DICOM structured reports including report editing - Dynamic Analysis for addition, subtraction, division, standard deviation, calculations of ADC maps, T1 and T2 values, TTP, t-Test, etc. - Image Filter - 3D post-processing MPR, MIP, MinIP, SSD - Flexible film formats and paper print - Data storage of images and cine AVI files on CD / DVD with DICOM viewer as the viewing tool for hand out to the patients or referrals - Selectable centric elliptical phase reordering via the user interface - Inversion Recovery to nullify the signal of fat, fluid or any other tissue - Multiple Direction Diffusion Weighting (MDDW) - perform diffusion tensor imaging with multiple diffusion weightings and up to 12 directions for generating data sets. Standard techniques for Flow Artifact reductions - LOTA (LongTerm Data Averaging) technique to reduce motion and flow artifacts - Pre-saturation techniques using RF saturation pulses to suppress flow and motin artifacts - Tracking SAT bands maintain constant saturation of venous and/or arterial blood flow eg. for 2D/3D sequential MRA - TONE (Tilted Optimized Non-saturating Excitation - variable excitation flip angel to compensate inflow saturation effects in 3D MRA - selectable on desired flow direction and speed - Gradient Motion rephasing permitting effective reduction of flow artifacts

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PRELIMINARY PROPOSAL

Part No. / Product	Description

(Continued)
14441600
MAGNETOM Aera - System
	Standard Motion Correction
	- *syngo* Blade - improves image quality by minimizing and correcting for the effects of motion during an MR sequence acquisition. e.g. head, spine, orthopedic imaging and the abdomen
	- 1D PACE (Prospective Acquisiton CorrEction) allows examination of patients with free breathing
	- 2D PACE (Precise Motion Correction) detects and corrects respiratory motion eg of the heart or liver
	
	MAGNETOM Aera runs *syngo* MR software. *syngo*® is the unique software platform for medical applications. Parallel working and one-click exams are efficiently supported and increase productivity. Parallel scanning and reconstruction are standard.
	The unique Phoenix technique is the easiest way to exchange protocol data. It supports intelligent extraction of sequence parameters from images acquired on a MAGNETOM Aera system.
	Inline technologies, scan@center or AutoVoiceCommands speed up the workflow further.
	The context-sensitive "Online Help" function and *syngo* Scan Assistant offer support and propose solutions to MR-specific questions and parameter conflicts.
	
	Studies can be easily networked and managed using the standard DICOM 3.0 protocol for efficient support of workflow. The following standard functions are supported: Send/Receive, Query/Retrieve, Basic Print for DICOM-compatible laser cameras (Camera is not included in the basic unit. Verify if existing camera is compatible or order separately.), DICOM Worklist, DICOM Storage Commitment (SC) DICOM Modality Perform Procedure Step (MPPS), DICOM Structured Report (SR), DICOM Study Split.
	
	Patient Communication
	- The intercom system includes an ergonomically designed patient communication unit for desktop positioning on the *syngo* Acquisition Workplace and pneumatic headphones for the patient.
	- It controls emergency table stop, volume control of speaker and headphones in the examination room, volume control of speaker in the control room, response to the patient's activation of the assistance-call button and provides a connection to an external audio system (external audio system is not included in the basic unit) for music playback.
	
	Computer system
	The high performance measurement and reconstruction system and the high performance host computer are ideally suited for even the most demanding applications. The PC-based computer system uses the intuitive *syngo* MR user interface. The computer system includes the following components:
	High-performance measurement and reconstruction system
	- Two Intel Quadcore Processor ≥ E 5504
	- Clock rate of ≥ 2 × 2.0 GHz, or comparable
	- Main memory (RAM) of 24 GB
	- Hard disk for raw data ≥ 300 GB
	- Hard disk for system software ≥ 300 GB
	- Parallel Scanning and Reconstruction of up to 8 data sets
	- Reconstruction speed
	  - 6,000 recons per second (256 x 256 FFT, full FoV)
	  - 33,000 recons per second (256 x 256 FFT, 25 % recFoV)
	
	High-performance host computer
	- Intel Xeon processor ≥ E5-1620 QuadCore
	- Clock rate ≥ 3.00 GHz
	- Main Memory (RAM) ≥ 8 GB
	- Three hard disks
	  - system SW ≥ 300 GB SAS
	  - data base ≥ 300 GB SAS
	  - images ≥ 300 GB SAS
	- DVD-R writer for CD-R (approx. 4000 images 256^2 DICOM Standard, ISO 9660) and DVD-R (approx. 25 000 images 256^2 DICOM Standard, ISO 9660) storage of DICOM data or other data like AVI files
	  - DVD-ROM drive

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441600** **MAGNETOM Aera - System**	- Electronic mouse. - The combination of host computer and the measurement and reconstruction system offers a truly powerful imaging system designed for large image matrix sizes of up to 1024 x 1024. The unrestricted multitasking capability allows time-saving parallel scanning and reconstruction. - High-resolution 19" color LCD flatscreen monitor with 1280 x 1024 pixel display, integrated gamma correction for optimum display of radiographic grayscale images and automatic backlight control for longterm brightness stability. **Installation**: - The relatively lightweight design of the MAGNETOM Aera in most cases eliminates the need for structural building reinforcements and thus facilitates installation in upper floors. - The compact integrated design allows for short installation times and reduces the required space to less than 30 sqm (323 sq. ft.) for the entire installation. The minimum room height clearance is only 2.40 m (7' 10"). - MAGNETOM Aera allows siting of the system without a dedicated computer room - no additional cooling or floor requirements. - MAGNETOM Aera combines state-of-the-art performance with peace of mind. High system availability is ensured by the expert, highly trained Siemens MR service engineers; - Your Siemens service contract (not included in the basic unit) offers a comprehensive range of benefits such as Uptime Remote Diagnostics for improved productivity and maximum uptime.
14436777 **Tim [204x24] XJ Gradients #Ae**	**Tim [204x24] performance level** Tim 4G offers DirectRF - a completely redesigned RF architecture. This all digital-in/ digital-out design integrates all RF transmit and receive components at the magnet, eliminating analog cables for true signal purity. This compact and efficient design enables feedback loop for unmatched RF stabilization. The innovative coil architecture packs more coil elements in a smaller space and allows for simultaneous connection of up to 204 coil elements. Combined with the 24 independent RF channels advanced iPAT capabilities and SNR are enabled. An additional benefit of multiple coil elements and receiver channels is improved performance in multi-directional, i.e. three dimensional, high-speed, high-resolution iPAT in the head-feet, anterior-posterior or left-right directions. **XJ gradients** Siemens XJ gradients provide actively shielded, water cooled world-class gradients. All axes are force-compensated. The XJ gradients have: - Maximum gradient amplitude of 33 mT/m, per axis, i.e. 57 mT/m vector summation gradient performance, - Maximum slew rate 125 T/m/s per axis, i.e. 216 T/m/s vector summation, - Minimal rise time 264 µs, from 0 to 33 mT/m amplitude - Maximum output voltage for each of the gradient axes 2000 V - Maximum output current for each of the gradient axes 625 A - Separate cooling channels that simultaneously cool primary and secondary coils allow the application of extremely gradient intensive techniques in a new class of performance. - 100% duty cycle for fast and demanding techniques such as ultra-short TE MRA in continuous operation, thin slice single breath-hold liver studies and EPI imaging techniques (all optional in appropriate clinical packages). - Variable Field-of-View selection from 0.5 cm to 50 cm (up to 45 cm in z direction) for optimal coverage and highest spatial resolution in diagnostic. The minimum slice thickness in 2D and 3D is 0.1 mm and 0.05 mm, respectively. - Acquisition of sagittal, transverse, coronal, single oblique and double oblique slices with highest resolution. - The extremely compact water-cooled gradient amplifier features a modular expandable design with excellent linearity and pulse reproducibility. It is digitally controlled and has very low switching losses due to ultrafast solid state technology.

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PRELIMINARY PROPOSAL

Part No. / Product	Description
14416906 **Tim Dockable Table #Ae**	The Tim Dockable Table with its light appealing design allows for a fast patient preparation and maximized patient comfort. It provides unobstructed foot space for attending staff and direct access to the patient. The patient table can be lowered to a minimum height of 56 cm (18.5") from the floor, for easier moving of immobile patients and better access for geriatric, pediatric patients or immobile patients. The Tim Dockable Table can be moved with two clicks into the isocenter - one click to the upmost position and one click into the isocenter. The tabletop travels beyond the rear end of the system, enabling additional patient access. Multiple Tim4G coils can be connected at once for efficient patient set up and patient friendly examinations. The seamless integration of multiple Tim 4G coils is possible via 4 SlideConnect and 4 DirectConnect connector slots, which are embedded in the table. This allows for comprehensive examinations without the need of repositioning. The Tim Dockable Table is easily adjustable for height even in the undocked state. A minimum height of 61 cm allows for easy wheelchair access or easy patient movement to the hospital bed. The integrated infusion stand and arm rests allow for fast patient set up anywhere and also for critical patients
08464872 **PC Keyboard US english #Tim**	The keys of the numerical key panel are assigned to syngo-specific functions and labeled with the corresponding syngo icons. The keyboard supports the country specific special characters.
14416914 **Pure White Design #T+D**	The unique color and material selection enhances the visual appeal of the new system design, thereby creating an enticing, patient-friendly impression. The Dot Control Centers and the unique Dot Display are neatly integrated into this main face plate. The aesthetically pleasing and ergonimcally designed control elements of the Dot Control Centers are well illuminated for easy visual recognition. In particular, the table cover and the asymmetric left deco area cover have also been designed to promote a modern visual appearance. This combination of ingenuity and practical design as presented with "Pure White" design with its brilliant white and the silver trim simply makes the MAGNETOM an overall visually appealing system and creates a patient-friendly environment.
14405224 **Composing syngo #Tim**	The option features: - Display and storage of full-format images, e.g. of the spine, the central nervous system or the vessel tree (starting from *syngo* MR B13), combined from multiple overlapping stages. - Dedicated composing algorithms, optimized for the generation of anatomical or angiographic (starting from *syngo* MR B13) full-format images. - Data sets with different FoV, resolutuion, matrix and slice thickness can be combined (starting from *syngo* MR B13). - Generation of full-format images from inline MIPs (starting from *syngo* MR B13). - Original, detail and reconstructed images can be displayed in different layouts. - Comparison of two reconstructed images for evaluation and diagnosis is thus made possible. - Filming in different layouts is supported. - Measurements of basic functions via reconstructed images is then possible. - Measurements of extended orthopedic functions: scoliotic angle, kyphotic angle, vertical distance measurement and differences in width of the intervertebral spaces. *Prerequisite: SW syngo MR B13.*
14416960 **Shoulder 16 Coil Kit #Ae**	The iPAT compatible Shoulder 16 Large and Shoulder 16 Small are ergonimically designed and adapted to the shape of the shoulder. The different sizes obtain maximum image quality for different body sizes: - 165 mm (6.5 in) diameter for small and medium sized shoulders - 200 mm (7.9 in) diameter for large shoulders The coils can be used either for left or right shoulders. It features sliding attachments to the base plate and can easily be adjusted for comfortable positioning. The coils excels in highest resolution imaging with exceptional signal/noise ratio.

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PRELIMINARY PROPOSAL

Part No. / Product	Description
14416962 **Foot/Ankle 16 #Ae**	The 16-element coil with 16 integrated pre-amplifiers excels in highest resolution imaging with exceptional signal/noise ratio, while taking full advantage of iPAT in all directions. Foot/Ankle 16 is ergonomically designed and features a boot-like coil design. Together with the included stabilization pads the coil allows easy, fast and comfortable patient positioning.
08857828 **UPS Cable #Tim**	Power cable to connect the 3 KVA Powerware 9125 small UPS system (pn PWR9125H3000) to the ACC cabinet of the MAGNETOM Avanto/ Espree/ Tim Trio for backing up the host computer and imager. Configuration includes connection box. The standard cable length is 9 m.
14413662 **UPS Powerware PW9130G-3000T-XLEU**	Voltage range: 180 - 276 V Input frequency: 50 / 60 Hz Output voltage: 230 VAC Dimensions (H x W x D): UPS 346 x 214 x 412 mm incl. UPS bracket set Weight: approx. 36 kg
4MR5142869 **Armrest #MR**	An MR-compatible arm rest that supports the patient's arm on the magnet patient table when starting intravenous lines. The board is removed after the IV is inserted. This product has been tested and verified for compatibility with the following Siemens' products: MAGNETOM Trio, Verio, Espree, Essenza, Avanto, Symphony, Area Skyra and Biograph mMR. Compatibility with other products cannot be assured and may void service contracts and/or system warranties.
KKTECOMR_45 **KKT ECOCHILLER 122L**	**Chiller KKT ECO 122 - L** Function: Supplies dedicated primary chilled water in cases where no chilled water supply is available on site. Air-cooled version, for outdoor installation up to a maximum distance of 25 m for connection to the IFP, incl. 50 m FOC for control. The cooling capacity of the chiller is 45 kW, the chilled water temperature is 20°C, the water flow is 130 l/min. Ambient temperature: -20 to +48°C Connection rating: 21 kW Voltage: 3/PE 400 V to 480 V / 50/60 Hz Fuse rate: 63 A Power consumption: 47 A Dimensions: 2000 mm x 1100 mm x 2100 mm (height x width x depth). Weight: 710 kg Noise level at a distance of 10 m at outside temperatures of: 21°C 46 dB(A) 32°C 51 dB(A) 48°C 57 dB(A) **IFP (Interface Panel)** Main functions of the IFP: - Interface function between the KKT chiller and the MR cabinet. - Water supply for MREF, MBB, CBB and TX box. Additional devices such as integrated differential pressure control, a pressure gage, and a filter are used in order to guarantee the precise functioning of the cooling circuit, especially for the cold head compressor (MREF). The connection must be made locally with 2" lines up to a maximum distance of 25 m. Dimensions: 800 mm x 1150 mm x 210 mm (height x width x depth). Weight: 67 kg

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Part No. / Product	Description
CHILINST_AVT **Chiller Start-up and Warranty for TIM**	Start up and initial set up service performed by the chiller manufacturer or designated service representative. This service does not include the piping and other prerequisite siting, of the waterchiller, which are the responsibility of the customer. 12 months warranty and performed by the chiller manufactuer.
14407261 **MR Workplace Container, 50cm**	The table design matches the MED-wide uniform design with silver-finished rim, use of friendly colors matching the Siemens color pattern for MAGNETOM and SOMATOM. Table height 72 cm, matching the *syngo* Acquisition Workplace and *syngo* MR Workplace console table, for installation in the operator room either directly to the left or right of the *syngo* Acquisition Workplace or *syngo* MR Workplace console table or separately. - Width 50 cm - Depth 80 cm - Height 72 cm Alternatively this casing is also suited for the Recon image processor (except for the MR systems with the Tim generation: there the Recon image processor is always placed inside the electronics cabinet).
14407258 **MR Workplace Table 1.2m**	The table design matches the MED-wide uniform design with silver-finished rim, use of friendly colors matching the Siemens color pattern for MAGNETOM and SOMATOM. - Width 120 cm - Depth 80 cm - Height 72 cm

14418596
SWI
	Despite a strong sensitivity for local magnetic field inhomogeneities Susceptibility Weighted Imaging (SWI) as a 3D technology keeps up the signal near large susceptibility leaps due to very thin slices and high resolution in the slice (high image quality e.g. in the area of the forebrain near the frontal sinus).
	Moreover, the phase information of the MR signal is integrated in the image display. In order to further increase sensitivity for localized microscopic magnetic field inhomogeneities, large-area magnetic field inhomogeneities (e.g. caused by susceptibility leaps near the sinus) are specifically suppressed in the phase images.
	This allows even smallest amounts of deoxygenated hemoglobin (e.g. in cerebral veins) or from products of hemoglobin decomposition (e.g. from hemorrhages) to be displayed.
	Interesting measuring times for the ultra-high-resolution 3D protocols are achieved through parallel imaging with iPAT (GRAPPA).
	
	The Susceptibility Weighted Imaging package includes:
	- SWI measuring sequence, iPAT compatible
	- optimized measuring protocols for the head
	- inline-postprocessing for automatic calculation of relevant images within the scope of image reconstruction:
	  - calculation of susceptibility-weighted images
	  - venous angiography: MIP of a thin slice block
	SWI has been optimized for clinical use to support diagnostics with cerebrovascular diseases (e.g. cerebral insult), venous malformation, brain trauma and tumors.

14441728 **NATIVE syngo**	*syngo* NATIVE offers: - Non-contrast enhanced MRA - Separate imaging of arteries and veins - Visualization of - e.g. - renal arteries or peripheral vessels The *syngo* NATIVE package comprises: - *syngo* NATIVE TrueFISP - *syngo* NATIVE SPACE

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Part No. / Product	Description
14430439 **RESOLVE**	RESOLVE is a diffusion-weighted, readout-segmented EPI sequence optimized towards high resolution imaging with reduced distortions. The sequence uses a very short echo-spacing compared to singleshot EPI, reducing susceptibility effects. A 2Dnavigator correction is applied to avoid artefacts due to motioninduced phase errors. This combination allows diffusion weighted imaging of the whole body. Additionally, an automatic reacquisition of data with large phase errors can be used to ensure that diffusion-weighted images of the brain are not affected by CSF pulsation.
14441731 **Tim Whole Body Suite #T+D**	Tim and the Tim Whole Body Suite enable for true whole body MR scanning for head-to-toe imaging. Whole body imaging with highest image quality without patient repositioning and without the need to change a single coil, not even once, this means whole body imaging without compromise. The Tim Whole Body Suite features: - The all-new Tim Table or Tim Dockable Table enable a full Field-of-View with coverage up to 205 cm (6' 9"). The table top has the same length as the standard system without whole body capabilities. Additional free space is required at the rear part of the magnet to ensure, that the table movement is not limited by the rear wall. - Table movement to its full extent can be remotely controlled from the operator console either by the operator or by sequence protocols. - Protocols and programs for whole body MR angiography and morphology e.g. for metastasis visualization and preventive care examinations. - Whole body MR Angiography is possible with high speed, high resolution and high image contrast on the entire volume combining high speed gradients and iPAT. - The large FoV of 205 cm supports the assessment of metastases distribution in the body with sequences such as TIRM (Turbo Inversion Recovery).
14441734 **Body 6 #Ae**	The 6-channel coil with its 6 integrated pre-amplifiers ensures excellent signal-to-noise ratio. The SlideConnect plug allows for fast and easy patient preparation resulting in less table time. Fast acquisition times enabled by iPAT in all directions. The light-weighted coil ensures highest patient comfort. The Body 6 can be combined with further Body 6 coils for larger coverage and is typically used in combination with the Spine 18/24 for examinations of the thorax, abdomen, pelvis or hip. The Body 6 can also be used for cardiac or vascular applications. Through its perfect combinability with the Spine 18/24, further Body 6 (optional), the Peripheral Angio 16/36 (optional), but also the Head/Neck 10/16 and all flexible coils (e.g. Flex Large 4, Flex Small 4) it contributes for a broad range of indications up to whole-body imaging.
14441788 **Hand/Wrist 16 #Ae**	The 16-element coil with 16 integrated pre-amplifiers excels in highest resolution imaging with exceptional signal/noise ratio, while taking full advantage of iPAT in all directions. Hand/Wrist 16 is ergonomically designed and adapted to the shape of the hand/wrist region. The coil features a hinged design of the upper part and slidable attachment to the base plate. Together with the included stabilization pads the coil allows easy, fast and comfortable patient positioning.
14441789 **Tx/Rx 15-channel Knee Coil DDST #Ae**	Thanks to its 15-channel design this coil is perfectly suited for high-resolution images with excellent SNR. With the arrangement of the antennas in three rings of 5 elements each, the coil is specially designed for parallel imaging with high acceleration factors. The coil is positioned on a laterally movable support and therefore allows for comfortable patient positioning of both legs for off-center examinations. SlideConnect Technology allows for fast and easy patient preparation, resulting in less table time. Furthermore, the upper part can be removed for easier patient positioning. Additional cushions allow for optimum patient immobilization.

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PRELIMINARY PROPOSAL

Part No. / Product	Description
(Continued) **14441789** **Tx/Rx 15-channel Knee Coil DDST #Ae**	The integrated transmission function makes volume-sensitive excitation with greatly reduced RF power possible on the one hand and, on the other, prevents aliasing artifacts (e.g. due to the other knee).
14441787 **Spine Dot Engine #T+D**	The Spine Dot Engine provides optimized cervical, thoracic and lumbar spine imaging for patients of all conditions. Spine Dot Engine provides the functionality to simplify your spine workflow by providing tools to reduce examination times, achieve optimal image quality, and assist you during reading. - User guidance step-by-step - AutoPosition - AutoAlign Spine with intervertebral disc detection - AutoCoverage - AutoSatPosition - Initial and interactive snapping - AutoLabeling of vertebrae - Automatic curved multiplanar reconstructions of 3D datasets The Spine Dot Engine includes: - Tim Planning Suite - Inline Composing - *syngo* WARP - Susceptibility Artifact Reduction *syngo* WARP integrates different techniques tailored to reduce susceptibility artifacts caused by orthopedic MR-conditional metal implants. 2D TSE sequence combining optimized high-bandwidth protocols and View Angle Tilting (VAT) techniques. This helps in evaluation of soft tissue in proximity of the implant. Available protocols include T1- weighted, T2-weighted, proton density and STIR contrast.
14416963 **2/4/8-ch Sentinelle BreastCoil #Ae**	The 8-channel configuration of the Sentinelle Breast Coil consists of 2 lateral 3-channel coil elements and a 2-channel coil middle element. The 4-channel configuration of the Sentinelle Breast Coil consists of 2 lateral 1-channel coil elements and a 2-channel coil middle element. The 2-channel configuration of the Sentinelle Breast Coil consists of 2 lateral 1-channel coil elements. The Sentinelle Breast Coil supports the Grid biopsy method. The 2-/4-/8-channel Sentinelle Breast Coil delivers brilliant image quality for high-resolution 2D and 3D MR breast imaging. Techniques for reducing scan times, such as parallel imaging, can be used very well. Together with the Tim Whole Body Suite, the coil can also be operated in "feet first" mode. This function substantially improves the examination flow with claustrophobic patients. For optimal patient positioning, a set of comfortable positioning cushions and aids, such as a height-adjustable head rest, is included in the scope of delivery. Furthermore a set of grid plates and a Biopsy Training Starter Kit (not for use on humans) are included in the delivery. The 2-/4-/8-channel Sentinelle Breast Coil measures approx. 1097 mm x 582 mm x 279mm (L x W x H) and weighs approx. 22 kg with base plate and 16 kg without base plate.
14416952 **Coil Storage Cart #T+D** **(Optional)**	The cart may be rolled to convenient locations in the examination room and can be opened up to work like a shelf. The coil storage cart has multiple drawers and trays as well as many other storage spaces for coils, cushions and miscellaneous items. Its dimensions are: Width 140 cm (4' 7") when closed and 280 cm (9' 12") when opened, depth 54 cm (1'9") and height 121 cm (3'12").

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Part No. / Product	Description
14436740 **syngo BreVis Biopsy #T +D** **(Optional)**	User interface for MR interventional planning. **A guidance is included.** The software supports the use of the above listed MR breast coils and the most common MR interventional accessories: Siemens 4-channel BI, Sentinelle Vanguard for MAGNETOM Avanto, Espree, ESSENZA, Symphony a Tim System, Trio a Tim System, Verio, Aera, Skyra as well as, Noras BI 320/160 and InVivo BBC.

MRI Replacement Project

PRELIMINARY ESTIMATE OF PROJECT COSTS

Construction Cost	
$1,500 sq ft x $400	$600,000
Soft Costs	
RF Shielding	$76,000
Screening Equipment	$ 8,000
Furniture	$16,000
A/E Fee	$72,000
Contingency *(10% of construction cost)*	$60,000
PROJECT COST *	**$832,000**

*Excludes Cost of MRI Equipment
and MRI Equipment Installation

Prepared By HMN Architects

Divider III. Community Need Criteria and Standards:

1. **Describe the financial rationale for the proposed replacement equipment.**

   This proposal requests the replacement of one MRI system. Revenues generated from the unit are adequate to cover the cost of the purchase, installation, and maintenance over the useful life of the equipment. However, the decision to replace the current MRI system at this time was based more on image quality and patient care than pure finances.
   Our current magnet is 16 years old, and it is only a 1T, small bore. The image quality is compromised because of its age, over current technology available. The magnet is at "end of life", and replacement parts are no longer available. With a 1.5T, we will be able to provide better neurologic, orthopedic, body imaging and breast imaging for our patients and physicians.

2. **Document if the existing equipment has exceeded its useful life.**

   As our magnet is 16 years old, it has been classified "end of life" for 6 years and is fully depreciated.

3. **Describe the effect the replacement unit would have on quality of care.**

   The 1.5T open appearance (70cm) and short bore length (145cm) magnet allows us a greater table weight limit. Newer technology allows for shorter scan times, which is critical for claustrophobic patients and patients whose pain makes it hard for them to lay still. The breast coil allows for better diagnostic breast imaging than we can currently provide our patients in our accredited Breast Center.

4. **Document if the existing equipment is in constant need of repair.**

   As this system has aged, it has required more frequent repairs which interrupt patient care and affects patient and physician satisfaction.

5. **Document if the lease on the current equipment has expired.**

   This system was purchased by St. Mary's Medical Center, therefore no lease was executed.

6. **Describe the technological advances provided by the new unit.**

   - 70cm open bore design - resulting in greater patient comfort and reduced anxiety.
   - 24 independent RF channels for greater signal to noise ratio - resulting in superior image quality.
   - Dock-able table with a 550 lbs. weight limit - allows for patients with critical illness or disabilities to be more easily positioned on the table.
   - 16 channel table-integrated Head/Neck coil - allows for complete head and spine coverage without moving the patient or changing coils, when coupled with the integrated spine coil.
   - 24 channel table-integrated Spine coil.

- 6 channel body coil.
- 2/4/8 channel breast coil.
- Complete protocols for Neuro, Angiography, Cardiac, Body, Oncology, Breast, Orthopedic and Pediatric scanning.

7. **Describe how patient satisfaction would be improved**

   With the latest software advances, scan times are greatly reduced which decreased patient anxiety. The wider more open bore is more comforting for claustrophobic patients. The dock-able table with 550 lbs. weight limit offers greater ease of positioning for patients with disabilities. We will now be able to offer exams that we cannot do on our current magnet, which will keep our loyal patient base at St. Mary's.

8. **Describe how patient outcomes would be improved.**

   Improved image quality and advancements in technology will allow us to more accurately diagnose disease, thereby decreasing the time from diagnosis to treatment.

9. **Describe what impact the new unit would have on utilization.**

   This new technology gives us the opportunity to provide better service to our current patient/physician base, and will allow us to bring new physicians and their patients to our door.

10. **Describe any new capabilities that the new unit would provide.**

    - Short bore length - decreasing patient anxiety.
    - Integrated coils with increased RF channels allowing for contiguous imaging, without having to move the patient or change coils. Resulting in decreased scan times and greater patient satisfaction.
    - Dedicated body part coils.
    - Breast coil allows for better quality and more accurate breast imaging.
    - The ability to produce images for custom prosthesis fabrication.
    - Increased table weight limit.
    - The ability to image the Thorax and Abdomen with breathing techniques.
    - The ability to perform biopsies.

11. **By what percent will this replacement increase patient charges?**

    St. Mary's Medical Center has always been committed to providing services in an economical and fiscally prudent manner while meeting the healthcare needs of the area. There will be no increase in exam charges related to the purchase of this replacement magnet.

Divider IV: Financial Feasibility Review Criteria and Standards:

This application is for replacement equipment that was previous approved.